



FourSat Kish



Energy Storage Solution

LFP Battery Container

- Compact design of standard 10-ft shipping container for easy transportation and installation
- Built-in fire protection system .
- Battery system with built-in controls, offering flexible scalability from 500 kWh to 7 MWh



Ancillary Services



Solar Plus Storage



Energy-Heavy Industries



Microgrids



Fully-Integrated Battery Solutions

Redefining Safety and Performance with Effortless Installation, Remarkable Scalability, and Integrated Fire Protection System

LFP battery container is designed for grid-scale and medium to large-scale industrial energy storage applications. Built on a standard 10-ft shipping container with compact design and simple installation procedure, the battery system can be rapidly deployed. LFP battery container is high energy density, offering scalability from 500 kWh to 7 MWh. This flexibility allows it to accommodate varying spatial and capacity requirements for different sites, optimizing land utilization.

In addition, F.P LFP battery container features redundant communication support for the installation site with built-in controls, enhancing the communication stability of the energy storage system. It also incorporates several sensors and a fire protection system to ensure the safety of the energy storage system.



Features

High Energy Density with Flexible and Scalable Configuration

- High energy density, effectively utilizing space
- Flexible configuration ranging from 500 kWh to 7 MWh battery capacity

Easy Transportation and Installation

- Whole-container transport without the need to remove battery modules
- Containers connected by flexible duct connectors on the top, tolerating positioning errors and reducing on-site installation time

Built-in Fire Protection System Enhancing Inherent Safety

- Real-time cell monitoring: temperature, voltage, and current of each cell
- Dual-redundant environmental sensors: smoke, temperature, humidity, hazardous gas, and flood
- Fire protection system: detection system, gas venting system, aerosol and fire sprinkler system

Integrated Control and Monitoring

- Built-in controls seamlessly integrate batteries and PCSs without the need for additional equipment and space
- Built-in Human-Machine Interface (HMI): on-site access to real-time field information
- Dual-redundant communication enhanced of communication stability and monitoring efficiency



Product Configuration and Design

Battery System

Container Connector

- Flexible duct connector design for flexible installation
- Quick installation of busbars, auxiliary power cables and communication cables

Embedded HVAC

- Built-in air conditioning system for optimal thermal management
- Installation of additional cooling equipment is not required, saving both space and cost

Battery Zone



Battery Container

Quick Wiring Design

- On-site work can be performed without opening containers to avoid the risk of exposure to water vapor and foreign particles
- Simplified wiring allows for shorter work duration, allowing for cost savings

AIO (All-In-One) Container

Auxiliary Power and Control Zone

DC Power Distribution Zone

Reinforced Storage Container

- Three-layer structure composed of double steel plate and fireproof rock wool boards (fire retardant up to 60 minutes)
- Cables and wires in accordance with IEC 6033
- IEEE 693 Recommended Practice for Seismic Design of Substations
- Access control for vandalism prevention

Battery Container

Redundant Detection System

- Smoke detectors
- Hazardous gas detectors
- Temperature sensors
- Door sensors
- Flood detectors
- Humidity sensors

Battery Module Protection

- Real-time monitoring of each battery cell
- Big data for aging/abnormality detection
- Insulation design of battery module
- Built-in fuse
- Cell balancing mechanism

1.4 MWh Battery Container



Fire Safety Protection

- Gas venting system
- Aerosol
- Fire sprinkler system
- Fire alarm siren & strobe

Safety Certification

- UL 9540A
- UL 1973
- IEC 62619 including fire propagation
- UN 38.3
- IEC 60730



Software Interface

Human Machine Interface (HMI)

- **Easy Commissioning**
On-site view of real-time information on the battery system
- **Real-Time Monitoring**
Operation information, environment status, UPS status, warnings, and battery information (e.g. SoC, SoH, voltage, current, temperature), etc
- **Convenient Maintenance**
Service mode option enables technicians to maintain the battery system easily

Battery Management System (BMS)

- **Clear Overview of Battery Status**
Intuitive UI for real-time display of battery string parameters
- **Quick Diagnosis and Debugging**
Easy access to error codes, database, daily logs, and entry records



Specifications

Model Name	FPEBSU-7000	FPEBSB-1400
Specification	Battery System (6 Containers with 22 Battery Strings)	Battery Container with 4 Battery Strings
Battery Cell	LFP 280Ah Cell	
DC Voltage Range	1089 to 1386 Vdc	
String Configuration	396S-1P	
Modules per String	18	
Installed Capacity	7000 kWh	1400 kWh
DC Usable Capacity	7150 kWh @ 25°C	1300 kWh @ 25°C
Rated Power	3333 kW	606 kW
Max. Charge/Discharge Current	3080 A	
Recommended DoD	95%	
Auxiliary Power	220/380 Vac (3P4W) ±5%	
Communication Interface	Ethernet	
Communication Protocol	Modbus	
Environment		
Environment Condition	Outdoor	
Altitude	< 2000m	
Operating Temperature	-30 °C to +50 °C	
Ambient Humidity	0 to 100 % RH (non-condensing)	
Storage Temperature	1 month: -20 °C to +45 °C, <70% RH ; 1 year: 0 °C to +35 °C, <70% RH	
Ingress Protection	IP54; Type 3R, NEMA 3R compliance	
Corrosion Resistance	Compliant with Severity-1 (IEC 60068-2-52); Passed 720-hour salt mist test (ISO 9227), ISO 12944 Level C5M	
Container Standard	ISO 668	
Seismic Level	IEEE 693 (0.5 G, 2% damping)	
Operation		
Measurement Accuracy	Voltage: ±0.5 %; Current: ±1 % ; Temperature: ±2 °C; SoC: ≤5 %	
HMI	For monitoring and maintenance	
BMS Log	90 days	
BMS Power Backup	UPS power backup for 60 minutes	
Time Calibration	NTP time synchronization	
Safety Protection		
Fire Safety Equipment	Gas-venting system, aerosol and fire sprinkler system	
Detection Sensors (per Container)	Temperature (x2), smoke (x2), gas (x2), flood (x2), humidity (x4), door (x4)	
Mechanical Information		
Dimension (W x D x H)	2438 × 2990 × 2896 mm (per Container)	
Weight	AIO Container: 12,000 kg (with 2 string battery rack) Battery Container: 16,000 kg (with 4 sting battery rack)	

